

MATTERS OF GRAVITY

The newsletter of the Topical Group on Gravitation of the American Physical Society
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DISCLAIMER: The opinions expressed in the articles of this newsletter represent the views of the authors and are not necessarily the views of APS. The articles in this newsletter are not peer reviewed.

Editorial

The next newsletter is due September 1st. This and all subsequent issues will be available on the web at <https://files.oakland.edu/users/garfinkl/web/mog/> All issues before number **28** are available at <http://www.phys.lsu.edu/mog>

Any ideas for topics that should be covered by the newsletter, should be emailed to me, or Greg Comer, or the relevant correspondent. Any comments/questions/complaints about the newsletter should be emailed to me.

A hardcopy of the newsletter is distributed free of charge to the members of the APS Topical Group on Gravitation upon request (the default distribution form is via the web) to the secretary of the Topical Group. It is considered a lack of etiquette to ask me to mail you hard copies of the newsletter unless you have exhausted all your resources to get your copy otherwise.

David Garfinkle

Correspondents of Matters of Gravity

- Daniel Holz: Relativistic Astrophysics,
- Bei-Lok Hu: Quantum Cosmology and Related Topics
- Veronika Hubeny: String Theory
- Pedro Marronetti: News from NSF
- Luis Lehner: Numerical Relativity
- Jim Isenberg: Mathematical Relativity
- Katherine Freese: Cosmology
- Lee Smolin: Quantum Gravity
- Cliff Will: Confrontation of Theory with Experiment
- Peter Bender: Space Experiments
- Jens Gundlach: Laboratory Experiments
- Warren Johnson: Resonant Mass Gravitational Wave Detectors
- David Shoemaker: LIGO Project
- Stan Whitcomb: Gravitational Wave detection
- Peter Saulson and Jorge Pullin: former editors, correspondents at large.

Topical Group in Gravitation (GGR) Authorities

Chair: Manuela Campanelli; Chair-Elect: Daniel Holz; Vice-Chair: Beverly Berger. Secretary-Treasurer: James Isenberg; Past Chair: Patrick Brady; Members-at-large: Laura Cadonati, Luis Lehner, Michael Landry, Nicolas Yunes, Curt Cutler, Christian Ott, Jennifer Driggers, Benjamin Farr.

we hear that ...

David Garfinkle, Oakland University garfinkl-at-oakland.edu

Irwin Shapiro has received the Einstein Prize

Thomas Carruthers, Steven Giddings, Scott Hughes, Balasubramanian Iyer, Sergey Klimenko, Carlos Lousto, and Sheila Rowan have been elected APS Fellows.

Hearty Congratulations!

100 years ago

David Garfinkle, Oakland University garfinkl-at-oakland.edu

In 1913 Einstein and Grossmann took the first steps towards a geometric theory of gravitation. Their paper, “*Entwurf einer verallgemeinerten Relativitätstheorie und einer Theorie der Gravitation*” [Outline of a Generalized Theory of Relativity and of a Theory of Gravitation] published in *Z. Math. Physik.* **62**, 225 can be found in English translation at http://www.pitt.edu/~jdnorton/teaching/GR&Grav_2007/pdf/Einstein_Entwurf_1913.pdf

GGR program at the APS meeting in Denver, CO

David Garfinkle, Oakland University garfinkl-at-oakland.edu

We have an exciting GGR related program at the upcoming APS April meeting in Denver, CO. Our Chair-Elect, Daniel Holz, did an excellent job of putting together this program. At the APS meeting there will be several invited sessions of talks sponsored by the Topical Group in Gravitation (GGR).

The invited sessions sponsored by GGR are as follows:

Relativistic Turbulence and MHD

Andrew MacFadyen, (TBA)

Bruno Giacomazzo, General Relativistic Magnetohydrodynamic Simulations of Compact Binary Mergers

Patrick Fragile, General Relativistic Radiation Magnetohydrodynamic Simulations of Black Hole Accretion

Recent Developments in Mathematical Relativity

Sergiu Klainerman, (TBA)

Mihalis Dafermos, (TBA)

Robert Wald, Dynamic and Thermodynamic Stability of Black Holes

Tidal Disruption Events

(joint with DAP)

Suvi Gezari, Observations of Tidal Disruptions by Black Holes

Enrico Ramirez-Ruiz, Simulations of Tidal Disruptions

Linda Strubbe, Predictions for Observational Signatures of the Tidal Disruption of Stars

Instrumentation for Current and Future Gravitational Wave Detectors

Brian O'Reilly, Status of Current Detectors

Lisa Barsotti, Beyond Advanced Gravitational Wave Detectors: Beating the Quantum Limit with Squeezed States of Light

Nicolas Smith-Lefebvre, Future Detectors II

Gravitational Wave Astrophysics

(joint with DAP)

Chris Fryer, Gravitational Waves: Probes of Stellar Collapse

Jocelyn Read, Learning About Dense Matter From Gravitational Waves

Will Farr, Gravitational Waves From Binaries and Dense Stellar Clusters

Black Hole Firewalls

Donald Marolf, Are There Surprising Quantum Gravity Effects Near the Horizons of Large Black Holes?

Raphael Bousso, (TBA)

Steve Giddings, (TBA)

Future Gravitational Wave Missions from Space

Paul McNamara, The LISA Pathfinder Mission

John Conklin, Gravitational Reference Sensor Technology Development at the University of Florida

Tyson Littenberg, A Stroll with eLISA Through the mHz Gravitational Wave Zoo

Neil Cornish, Observing Black Hole Mergers with Space Based Gravitational Wave Detectors

Kevin Kern, Multimessenger Astronomy: Modeling Gravitational and Electromagnetic Radiation from a Stellar Binary System

Einstein Prize Session

Irwin Shapiro, The Anatomy of a Test of General Relativity

Tom Murphy, Lunar Laser Ranging: a Playground for Gravitational Physics

Michael Kesden, New Astrophysical Probes of Black Hole Spin

Multimessengers from Space

(joint with DAP)

Elizabeth Hays, Gamma-ray and X-ray Views of the Energetic Sky from a Multimessenger Perspective

Eun-Suk Seo, Current and Future Cosmic Ray Observatories in Space

James Thorpe, The Science of Gravitational Waves with Space Observatories

The GGR contributed sessions are as follows:

Alternative Gravity Theories

Coalescing Binary Waveforms

Quantum Gravity and Cosmology

Gravitational Wave Data Analysis

Simulations of Binary Neutron Star and Black Hole - Neutron Star Mergers

Classical and Semiclassical Gravity

Numerical Investigations in Relativity

Gravitational Experiments and Instruments

Gravitational Wave Observation

General Relativity: Mathematical Aspects

New Directions in Gravitational Physics

Numerical Relativity Methodology

Approximation Methods in General Relativity

Astrophysical Numerical Relativity Simulations